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Online Land Registration Using Blockchain

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Abstract: ***If a person wishes to make purchases properties, an intermediary known as a dealer (as in India's old Land Administration system) would help facilitate the transaction by creating and compiling all the necessary physical papers to support a settlement as proof of ownership. A recognized federal department will document the property, and all its qualities will be recorded in a book by the broker before the contract is made. Files may be lost or tampered with in this situation since anybody who has access can access or edit the papers, and that in turn compromises this physical evidence of land ownership. Our suggested smart contract-based solution, on the other hand, is more efficient in terms of time and security, as well as synchronized and less susceptible to distortion or fraud over the course of completing a purchase or asset management process. As a result of a thorough examination of something like the traditional land application procedure, as well as an evaluation of Blockchain's leadership and integrity repair work, as well as the virtualization factor, we have proposed a solution using Blockchain technology.***

Keywords: Smart Contract, Land Registration, Blockchain, Secured, Asset Management.

I. INTRODUCTION

Land registration is a time-consuming and inconvenient procedure. Due to the millions of property records to keep, current land registration and verification systems are seeing an increase in fraud instances, as well as the loss of documents and court proceedings. The idea behind it was to make the land registration procedure more robust and reduce the number of property frauds. Validation of lands is also achievable with this system since immutable transactions are kept on the public ledger. As a result, the blockchain-based Land Registration system is a distributed system that will keep all of the transactions conducted during the land purchase process. For establishing impartial apps and file storage amongst some of the linked users, blockchain technology is an innovative network that keeps track of money that has been carried out along the way. For each one of these transactions, a large percentage of the service's members use confirmation methods to verify it.

Blockchain is a rapidly expanding technology that has applications in a variety of disciplines, including healthcare, supply chain management, and market monitoring [1&2]. The deployment of blockchain-based solutions for various levels such as corporate, community, city, and national voting was recorded in [3]. Cryptographic hash methods are used to protect fresh blocks of data as they are produced. It is thus impossible to change the data provided once without engaging a legal official. The blockchain evaluation was conducted in [4], with the theme for reviewing the blockchain being economic benefits and the fintech revolution being two of the few study themes. An occurrence, incident, and data register may be built on the ledger using multiple IT techniques featuring advanced encryption assurances, which are dispersed and duplicated out over the system providing theft-proof, unlinkability, and verification. Transfers, as well as records executed, are unchangeable and provable because of the decentralized digital ledger, which is accessible, shareable, traceable, and extremely secure. When additional blocks are added to an existing block of data, they are added to the current block, and each new block contains transaction records.

Users would sign up for this system and then take on the mantle of either a buyer or a vendor. All necessary information must be provided by the seller before a buyer may make a purchase on the portal. A data update in the chain will be published as soon as fresh deeds are obtained digitally by other users. By eliminating the intermediary, all negotiations will be managed appropriately between purchasers under the current proposal. Now that payments are timestamped, they can be more easily audited since they are stored in a secure cryptographic format on servers of all people concerned.

II. LITERATURE SURVEY

The Development of the internet, financial transactions, and digital transformation has revolutionized the business world including the banking sector. The promising application of cryptocurrency is offered by blockchain technology to the banking sector. [5]

The implication of blockchain technology to the banking sector in India tends to provide a lot of benefits to the banking industry. Also, it has to face certain challenges while dealing with such kind of implementation i.e., of the blockchain technology.[6]

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Blockchain technology is found to provide the storage facility i.e., concerning the data and information related to certain business transactions. The economic activities tend to boost up in case the banks adopt the practices of investing more in blockchain technology.[7]

Blockchain technology needs to follow certain standards of modernization. This will be based on the adoption of the latest & advanced technology.[8]

The implication of blockchain technology needs to adopt certain specified standards specifically when it is the case in the banking industry.[8]

III. METHODOLOGY

The entire system is divided into three sections. The first section being User-Section, second section being verifier section and the last section being Government. The number of stages in verifier section can be added according to the requirement or existing system as per the convenience.

A. Government-Section

The government deploys this system on a blockchain system and the land verifiers are added according to the area and requirements.

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B. Verifier Section

Verifier has the ability to verify users, lands, and complete the ownership transfer process. The User uploaded documents are verified and then if a user is verified the user can add or purchase lands and if only if the land is verified it is added to the blockchain.

C. User Section

The User Section is where the people who wants to buy or sell the land gets registered. It has multiple stages involved.

1) *Register Users:* When a person wants to either sell or buy the land, he needs to get himself registered into the blockchain system by providing the proofs such as Aadhar Card or PAN Card. For even more secure system the Aadhar authentication system can be used. Then the verifier will go through the proofs and verify the person and allows him to buy or sell the land.
2) *Register Land:* Once the user gets verified the user can now be able to add or purchase the land. For selling the land that has not been registered he must first register his land and get it verified by the verifier. For registering the land, he must mark the area occupied by his land on the Map displayed on the system, enter the valid survey numbers of the land, and submit the proof of his ownership. After successful registration the verifier goes through the proof and if everything is clear the land will be verified by the verifier.
3) *Put a land for Sale:* Once the Land is verified the land, the owner can make it put it for sale and will be displayed on land gallery (The place where all the lands available for purchasing are visible). The various verifications can be added to the system such as:

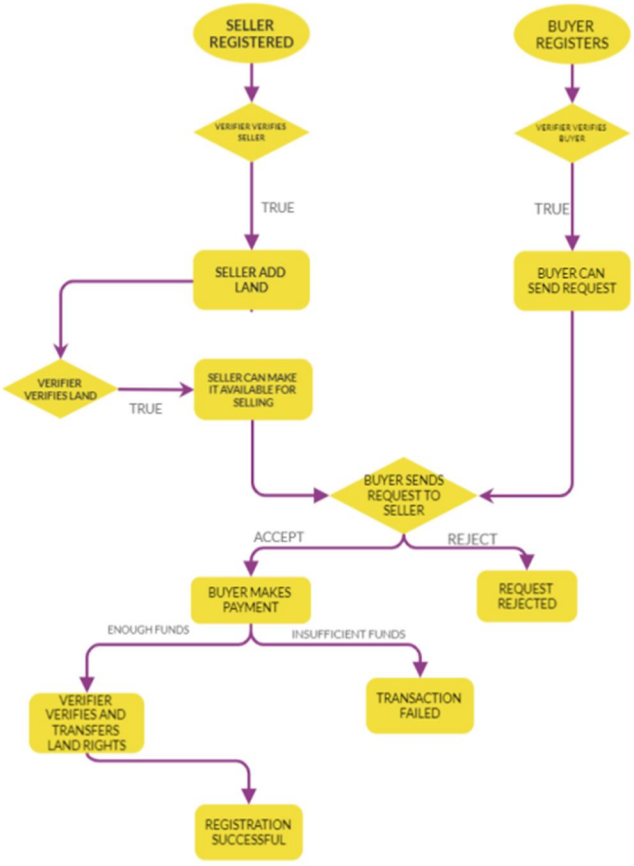
a) *Government Verification:* If the purchase of something like the land falls within the Maharashtra government's allowed price category, the estate asset will be confirmed by the department. The pricing range's values change over time and even from city to city. It is only possible for the physical asset to be validated by a registration and comment thread if he acknowledges the seller's identification and the land papers he claims to have. It is also important to check the land based on the seller's criminal history.
b) *Registrar Verification:* Then if the registrars recognizes relevant land papers and the seller's identification as he alleges could the actual commodity be validated by the registration and or the sub recorder. In addition, the criminal history of the owner is considered while examining the property.
c) *Collector Verification:* If a land investment is Forest, Governmental, or Religious based, it will be checked by the collector to ensure there are no anomalies.
d) *Put the Land for Sale:* The landed assets is just put up for sale once it has been thoroughly verified.

4) *Change Owner of Land:* To complete the purchase of a real asset, the owner of the land must be changed. Some circumstances need to be double-checked before this modification takes effect. It is expected that the buyer has no criminal background. The buyer must have enough money in their account to cover the cost of land registration. The vendor of the property must have listed it for sale. Following the fulfilment of these prerequisites, the following procedures are carried out:

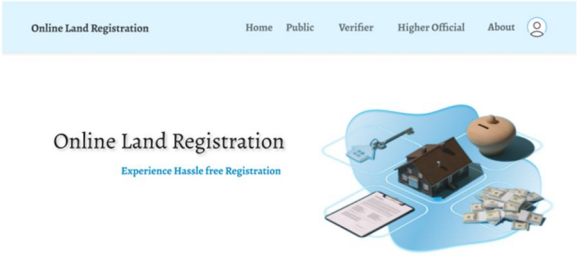
a) *Changing Owner:* After an asset has been sold, it is awarded a majority shareholder value, which means the existing owner has been reassigned and the new owner has been assigned to it. for paying that price plus other fees like customs duties et certification (to the registrar). Depending on the time of year and location, the costs might be rather different.

b) *Initializing State of Land:* The acreage asset is now in the new founder's possession. He can decide whether or not to put the lands up for sale. Until the next individual chooses to sell the property, this property of the land will be reset.

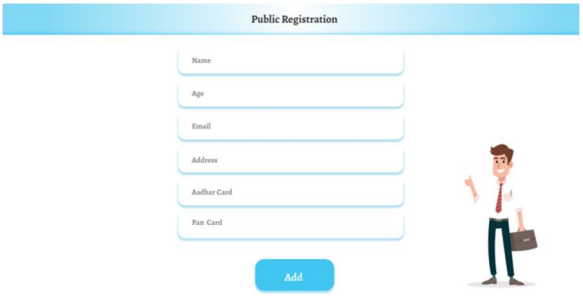
IV. SYSTEM ARCHITECTURE AND RESULT ANALYSIS



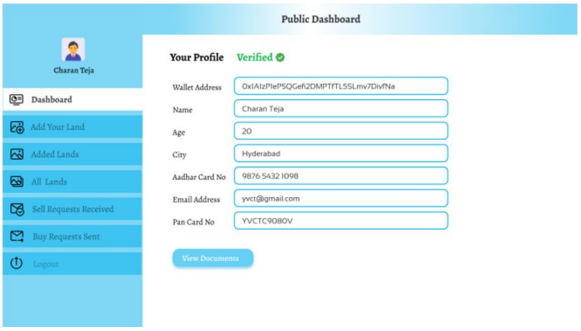
User registration is required on the site and they may choose to either buy something from or sell something to others. Further, users can obtain cryptographic deeds that will be added to the chain as a new block. By eliminating the intermediary, all negotiations will be handled directly here between contracting parties under the developed framework. The picked up of payments will be improved because now logs are connected with them since they will be stored in the legal computers of all relevant parties in some kind of an encrypted format.



Now user has to register with her details and pan card number through the particular portal as shown in below.

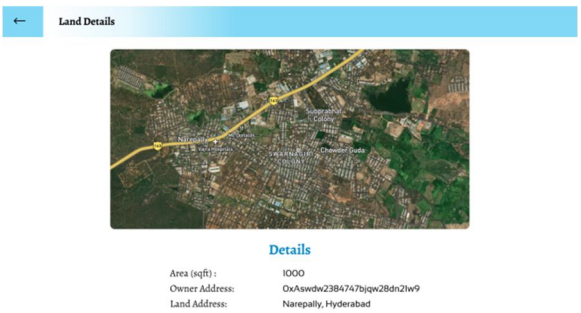


In order to register a user on the forum, the administrator must first fill out a form with all of the necessary information about the person. This includes their name, e - mail address, contact number, globally unique no of (like an aadhar or pan card), annexation, payables and receivables, a copy of their utility bill (to verify their address), and any police record information (if any).





Verify the users after providing the details is correct or not.



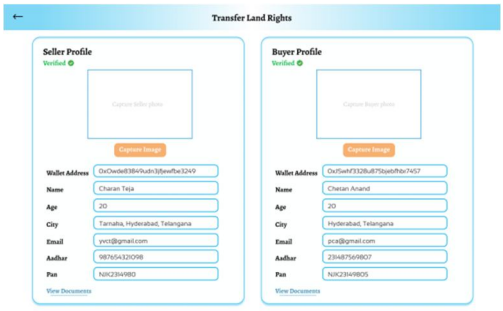
Provide land details like price of the land, exact location details with images and make payment.



When the owner wants to sell his land the sell button is clicked and the land is added to the land gallery and is made visible to other users.



There are certain additional costs, such as the business rates and membership fee that must be paid by both buyers and sellers when purchasing land (to the registrar). Depending on the duration of year and location, the costs might be rather different. The land has now been transferred to a new owner.



The registration process is completed when both the users along with a witness visit the land inspector and give their physical proof. Now the purchased land is visible in second user's My Land section and the first user's wallet is summed with the land price.

V. CONCLUSION

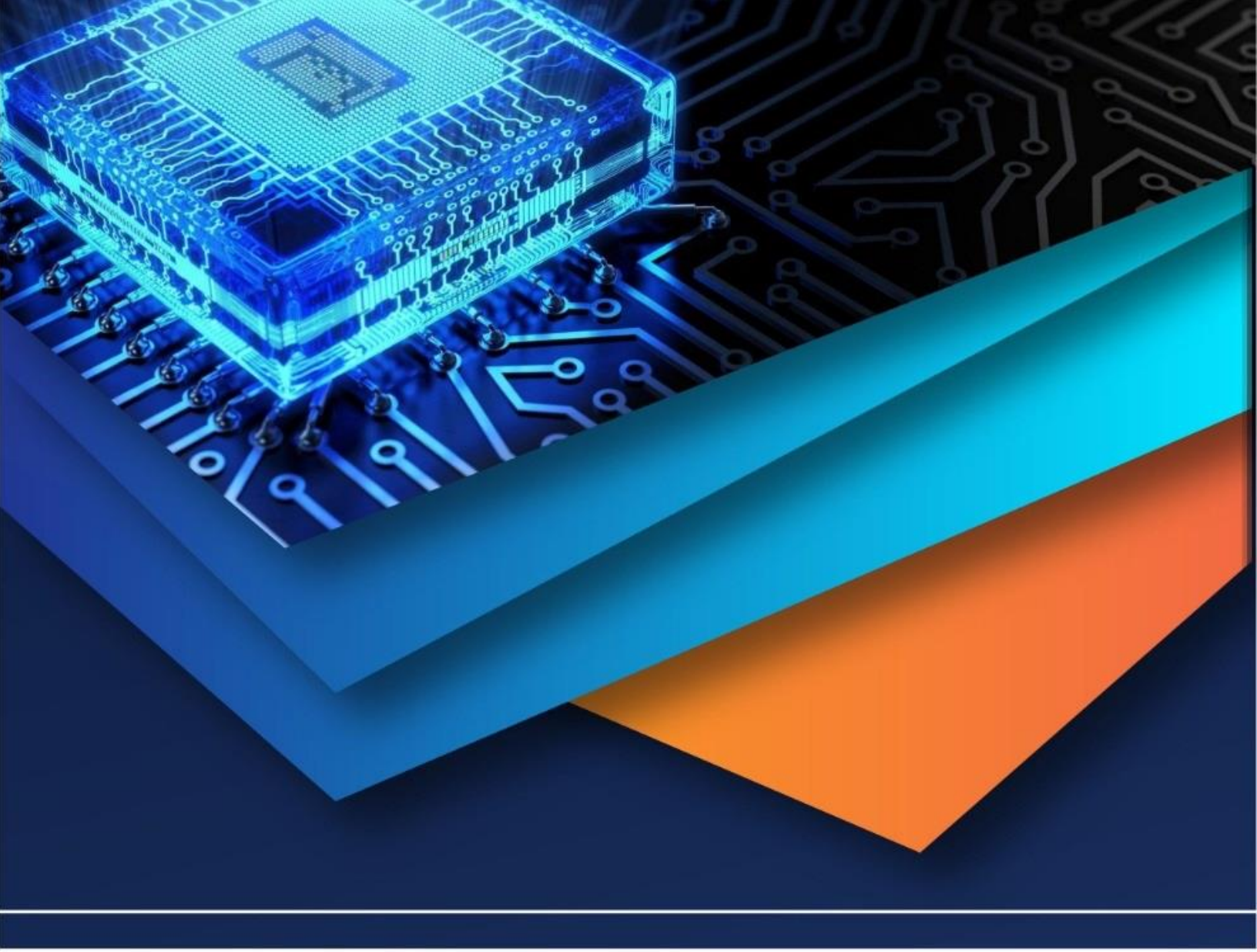
One of its most getting access of storing things is through the use of the block - chain. Open to anybody, it is a digital database that cannot be tampered with once data has been entered. The Customary Land Scenario in India are some of the most bogus processes in the country, and we like to use block chain technology to combat this. Hyperledger is employed in our systems, which leverages blockchain technology. When all the actions like purchasing and selling are done in a more practical and trustworthy manner, a new system is created. As a result of the use of smart contracts, this mechanism is now more secure and quicker than before. Faster operations can be achieved if this sort of mechanism is further developed and combined with relevant APIs. It would also lead to a more efficient and comfortable system, which will also ultimately help society.

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